

An Introduction to the World Wide Web As An Educational Tool  
Using the American Revolution As An Example

An Honors Thesis (HONRS 499)

by

Steven M. Shrader

Thesis Advisor

Dr. Paul Buis

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Ball State University

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## Purpose of Senior Honors Project

The goal of this project was to gain a better understanding of an Internet tool, the World Wide Web, while creating a useful and educational resource that could be referenced as an example for beginning developers. The focus of my project was the development of a multi-media reference of the American Revolution using an object-oriented design that can be easily updated. This document contains background information on the Internet and World Wide Web, an explanation of object oriented design, on which the structure of the project is based, and the textual historical descriptions which act as anchors for the multi-media.

## Acknowledgments

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## The Internet and World Wide Web

The Internet began in the late 1960s when the Defense Advanced Research Projects Agency (DARPA) began working toward an internet technology. The ARPANET, a long haul network, was developed to do the reliable network research on and served as the initial backbone of the Internet. In 1983 the Defense Communication Agency split the ARPANET into a research network, which kept the name ARPANET, and a military network, which took the name MILNET. In 1985 the National Science Foundation (NSF) began forming networks centered around their six different supercomputer centers. The following year the NSF tied their supercomputer centers to the ARPANET and also supplied funds to regional sites setting up networks. All of the networks used the TCP/IP protocol thus forming the initial Internet. When universities became connected to each other on the Internet, tools started to be developed to aid in the transfer of data. Some of the most common tools are e-mail, file transfer, remote login, gopher, and now the World Wide Web.

The Web was developed in 1989 by Tim Berners Lee at the European Laboratory for Particle Physics in Geneva, Switzerland. It was initially developed to help high energy physicists communicate better, but its popularity has spread from researchers to all areas. The Web is based on the idea

of hypertext. Hypertext is the idea that references should be embedded directly in the document. By choosing a highlighted word or phrase in the document being viewed the document pointed to by that word or phrase is transferred to the user's browser. The Web has also transformed from just serving hypertext to the area of hypermedia. Hypermedia includes documents, pictures, sounds, and even video. Marc Andreessen, a graduate student at the National Center for Supercomputing Applications at the University of Illinois Urbana-Champaign at the time, wrote a graphical browser program known as Mosaic for the Web. When this browser was released on the Internet in May 1993 the popularity of the Web exploded. One very important reason for the tremendous popularity of the World Wide Web is the simple use of the interfaces, such as Mosaic, that are used to access the Web.

Documents on the Web are known by their Uniform Resource Locator(URL). This is the present standard for document identification and it is in the form: `PROTOCOL://HOST/PATH`. The protocol is needed because a Web server can serve documents from gopher, USENET news, and WAIS as well as hypertext documents which are known as http. The host/path is used to specify the hostname of the computer that the document is on and also the directory path to the directory the document is in. For example the URL of the Ball State Computer Science Department's World Wide Web homepage is "`http://www.cs.bsu.edu/index.html`".

The Internet and its tools have developed at an explosive rate since its beginnings in the late 1980s. The World Wide Web is the Internet tool that is now experiencing the largest growth, currently estimated at 10% per week, due to its ability to deliver hypermedia documents. The Web has proved to be a valuable educational tool in many areas.

## References

1. Comer, Douglas E. Internetworking with TCP/IP:  
Volume I. Englewood Cliffs, New Jersey: Prentice  
Hall, 1991.
2. Ford, Andrew Spinning The Web: How to Provide  
Information on the Internet. London: International  
Thomson Publishing, 1995.

## Updating My Object-Oriented Design

Object-Oriented Design is based on the principle that a class is defined by certain information. Then each subclass is defined by the same information as its parent class plus additional details that make the subclass more specific. These subclasses can then be parent classes of even more detailed subclasses until the subclasses get to a level where they become very specific. The American Revolution on the World Wide Web project is divided into four base classes. These classes are: People, Events, Places, and Documents.

The information requirement of the base class People is that the people were in some way involved in the American Revolution. The two subclasses of Individuals and Groups then divide the description into what individual people did and what groups of people did. The Individual subclass is then a parent class of American Leaders, British Leaders, and French Leaders. Likewise, the Groups subclass is a parent class of American and British. All of the lowest level subclasses then answer the questions who the people were, where they were, when they were involved with the Revolution, and why they were important to the Revolution. The articles about these people, for example Thomas Jefferson, King George III, and the Second



Continental Congress are instances of these lowest level subclasses and answer all of the questions that make that subclass.

The classes Events, Places, and Documents are set up in a similar way and answer almost the same questions. The class Events has the subclasses Battles and Leading To Revolution. The class Places has the subclasses Cities, Camps, Countries, and Colonies. Documents has no subclasses so the articles covering The Declaration of Independence and Treaty of Paris are instances of the class Documents.

This design lends itself very well to a directory tree that can be easily updated. The top-level directory, revwar/, has an index.html file which is referenced when someone requests viewing of my project. This file displays the directory of the articles, a link to the reference page, and a link to a page asking for comments. The reference page can be updated by editing the file refs.html and the comments page is the file comm.html. The displayed directory is then expanded when the user chooses one of the four links: People, Events, Places, or Documents. When the link is chosen the user is sent to the corresponding directory: revwar/people, revwar/events, or revwar/documents. Each of these documents has an html file with the same name as the directory it is in. This pattern continues down to the lowest class level, for example revwar/people/individ/american. In the subdirectory american then there is the file american.html which contains

the list of all available articles. This directory also contains all of the html files for the articles, for example, if Benjamin Franklin is chosen from the list displayed by american.html then the browser gets franklin.html which displays information about Benjamin Franklin. To add another article it is very simple to create an html file with the persons last name which contains the information to be displayed. Also the person's name needs to be added to american.html in the directory revwar/people/individ/american and that file can then be accessed. The set-up is the same for the other three base classes, the only difference being the number of sub-directories for the classes. If a new class is to be added it is slightly more difficult. Because every sub-directory has an html file that displays the directory, if a new category is added then every html file must be updated with the new link. For example, if a base class Ideas is added, then index.html in directory revwar must be changed to include Ideas and the correct link with the other members of the list: People, Events, Places, and Documents. Also, people.html in the directory revwar/people must be updated to include the base class Ideas. This has to be repeated down to the html file for the lowest level directory, not including the html files that display the articles.

With this type of a set-up new links can be easily updated as new information is added, or if the html files need to be changed for any reason such as a new technology.

Because all of the related articles are in a common directory, the project can also be easily updated with new pictures or other multi-media.

## Articles Written For The WWW Display

## Bonhomme Richard vs. Serapis

In 1777 the American sailor John Paul Jones left America in his ship Ranger for France. When he arrived in France he left on orders to privateer against the English. Jones accomplished this by sailing near the coast of England attacking any vulnerable target. After seizing the British frigate Drake, Jones returned successfully to France. In France, Jones was put in command of the merchantman Bonhomme Richard, named in honor of Benjamin Franklin and his Poor Richard's Almanac. Aboard his new ship Jones again left France to harass British shipping and came in contact with a convoy heading for England. The Bonhomme Richard and the new British flagship Serapis began a battle that would last the remainder of night on September 23, 1779. Both ships endured extensive damages and when the Bonhomme Richard was at its low point Jones was asked if he wanted to surrender. Jones replied with the famous statement, "I have not yet begun to fight," and the battle continued as the ships sat grappled together. The Bonhomme Richard eventually gained the advantage when the mast of the Serapis was destroyed and the commander of the British frigate surrendered to Jones. The Bonhomme Richard sank the next morning and victorious Jones sailed the damaged Serapis to Holland for repair.

## Boston

Boston, Massachusetts was the center of the American Revolution. When the British Parliament passed the Stamp Act in 1765, Boston citizens reacted with mobs that made their feelings known to the government officials. In 1770 the Boston Massacre claimed the lives of five Bostonians after a conflict between a mob of citizens and British soldiers. In 1773 the Boston Tea Party led to the closure of Boston Harbor. The military segment of the revolution started with the battles of Lexington and Concord near Boston in 1775. The Intolerable Acts the British imposed on the colonies after the Boston Tea Party were instrumental in bringing the colonies closer together and the citizens of Boston and Massachusetts took the lead in urging independence.

## Boston Massacre

The Boston Massacre was the name used by Patriot propagandists to describe a confrontation between Boston citizens and British soldiers. Tensions between the two groups had been building for some time and on the evening of March 5, 1770, the result was the death of five Boston citizens. After a brief skirmish between a soldier and civilian a group of Boston citizens began to form around a British sentinel. A British officer, Captain Preston, saw the distressed soldier and took seven soldiers to his aid. When the soldiers got to the sentinel however, they found themselves surrounded by angry citizens. After a short time of shouting and taunting by both sides, and ice-hard snowballs being thrown at the soldiers by some citizens, the tension became too tense and one of the British soldiers fired into the crowd. Before Captain Preston could stop them several other soldiers fired and the damage had been done. Although all but two soldiers were later found innocent of guilt, the two found guilty were branded on the hand and discharged from the army, the incident turned the citizens even more heavily against the soldiers and pushed the colonies towards revolution.

## Boston Tea Party

When the British imposed the Tea Act on the colonies in 1773 there was a strong push by the Sons of Liberty to resist. In November 1773, three British ships, loaded with tea, arrived in Boston Harbor. The patriots refused to let the tea be unloaded and government officials refused to clear the ships to return to England with their cargo. The patriots solved this problem on the night of December 16, 1773, when they boarded the unoccupied ships and dumped every chest of tea into Boston Harbor. The British reaction was to shut the port of Boston to trade, which angered the colonists and placed them on the edge of revolution.



## 1st Continental Congress

The First Continental Congress met on September 5, 1774 in Philadelphia to discuss the relations between the colonies and England. The colonies had been growing closer through their resistance to the tax acts of Parliament and when the Coercive Acts closed Boston Harbor a convention was called. The first Congress was attended by delegates from the thirteen colonies except for Georgia. The goal of the Congress was not to move towards independence but to address their grievances against the British government. The Congress did this by adopting the Declaration of Rights stating the colonies rights in trade and taxation. The Congress also further unified the colonies by setting up the Continental Association which agreed not to trade with Britain or use British goods until Parliament changed their policies towards the colonies. The representatives also agreed to meet the following year if the situation did not improve.

## 2nd Continental Congress

The Second Continental Congress met on May 10, 1775 after relations with Britain had deteriorated to the point of fighting in Massachusetts. Unlike the First Continental Congress the Second Continental Congress took on the responsibility of government when it met in Philadelphia. The Second Continental Congress also had a larger number of delegates thinking about independence, led by the outspoken John Adams, than the first Congress. The Congress appointed George Washington as commander in chief with the job of forming the Continental Army into a respectable fighting unit. The Congress formed a committee, led by Benjamin Franklin, with the mission of traveling to Canada to bring the Canadian colonies into line with the American colonies. The delegation that went to Canada was unable to overcome earlier established differences however, and the Canadians never entered the war on the side of the Americans. The Congress also formed a committee consisting of Virginia's Thomas Jefferson, Pennsylvania's Benjamin Franklin, Massachusetts' John Adams, Connecticut's Roger Sherman, and New York's Robert Livingston. The job of the committee was to review the resolutions coming

from all over the colonies. On July 4, 1776, after two days of revisions, the final text of the Declaration of Independence, written almost entirely by Thomas Jefferson, was unanimously approved.

## Charles Cornwallis

General Charles Cornwallis was the British commander whose surrender at Yorktown in 1781 all but ensured American victory in the Revolution. After successes in the North, Cornwallis was placed in charge of the British southern campaign centered around Charleston. Cornwallis left South Carolina in pursuit of American General Nathanael Greene and followed him into North Carolina. At this point Cornwallis was at a crossroads, he had travelled too far to return to Charleston yet gained no tactical advantage by continuing into Virginia. Cornwallis did continue to Virginia and eventually found his army on a narrow peninsula extending into the Chesapeake Bay with a French fleet blocking any escape by sea and Washington's army arrived from New York making impossible an escape by land. After a combined French and American siege, Cornwallis surrendered on October 19, 1781. The opportunities for a British victory had become too expensive to bare and the war officially ended with the Treaty of Paris in 1783.

Cornwallis was one of the few British participants in the American Revolution who had a measure of success following it. He served as both Governor General of India and Lord Lieutenant of Ireland. In 1793, twelve years before he died in India, he gained the British title of marquess.

## Benjamin Franklin

Of the American revolutionaries, at the start of the war Benjamin Franklin was the most well known in the world. Franklin was one of seventeen children born to Josiah and Abiah Franklin. He was born January 17, 1706 in Boston. Franklin only attended formal school until the age of ten, but he continued to educate himself throughout his life and made great contributions as a publisher, scientist, inventor, and statesman. At the age of seventeen Franklin left Boston for Philadelphia and by 1730 he owned his own printing business and had married Deborah Reed. William, one of Franklin's three children, later went on to become governor of New Jersey and an irreparable rift between the two formed when William refused to support independence. It was as a printer that Franklin first found fame with The Pennsylvania Gazette and Poor Richard's Almanac. Franklin would later be known for becoming the deputy postmaster general for all of the American colonies, experimenting and proving that lightning is electricity, helping to found the University of Pennsylvania, and for his greatest contribution to the United States as a statesman and diplomat.

Franklin went to London in 1757 as a spokesman for the Pennsylvania legislature and stayed there for the majority of the time until 1775. Over those years Franklin's role changed

to a representative of all the colonies as the relations with England worsened. In 1776, after helping to draft the Declaration of Independence, Franklin left for Paris to become minister to France. In France, Franklin was very well liked and was instrumental in persuading the French to ally themselves with the Americans in 1778 after the defeat of British General John Burgoyne at Saratoga. The French support helped to turn the war and bring about the eventual American victory. Franklin was one of the signers of the Treaty of Paris ending the war and finally returned to the United States in 1785. At the age of eighty-one, three years before his death, Franklin attended the Constitutional Convention and was one of the signers of the Constitution in 1787.

## French and Indian War

The French and Indian War, fought in America, began in the summer of 1754 over a land dispute between the British and French. George Washington, 22 years old at the time, led a small group of soldiers against the French in the opening battle of the war near Fort Necessity in Pennsylvania. Two years later the war between the British and French spread to Europe and was known there as the Seven Years' War. The Treaty of Paris, ending the war in 1763, gave most of Canada and France's possessions east of the Mississippi River to England while the French land West of the Mississippi River went to Spain. Fort Necessity in Pennsylvania was the part of the war between England and France that was fought in North America. Some of the reasons that the French and Indian War was important, reasons that would combine with others to lead to the Revolutionary War, were the emergence of George Washington as a leader, the gain of territory by the British, and the financial cost of the war to the British. After his imperfect beginning, George Washington went on to become one of the most influential historical figures in American history. The territory gained by the British later caused friction with the colonists when the British tried to stop them from settling there. But probably the most considerable effect was the financial cost of the war. The British Empire

went into debt following the war and many in England thought the colonists should bare some of this burden because the French and Indian War was fought to defend them. Many of the later colonial conflicts with Britain were caused when Parliament tried to tax the colonists to ease the debt.



## George Rogers Clark

Most of the battles of the Revolutionary War took place in the established colonies on the Atlantic coast of America. However, there were also significant battles that took place in the remote wilderness West of the Appalachian Mountains. George Rogers Clark was born on November 19, 1752 in Virginia, but he was living in the frontier district of Kentucky when the American Revolution broke out. Detroit was the major British post in the frontier region and by 1777 the British commander of the garrison, Lieutenant Governor Henry Hamilton, was equipping Indians to attack the American settlements in the territory. In 1778 George Rogers Clark led a small group of volunteers from Virginia, Kentucky, and Tennessee through the freezing and flooded rivers of Illinois where he captured the British outposts of Cahokia and Kaskaskia. Clark then led his soldiers on to Indiana where they captured the British Fort Sackville at Vincennes. The British sent a militia from Detroit and captured Fort Sackville back from the Americans only to have Clark return in February 1779 and again recapture the fort. Although Clark never took total control of the wilderness, his achievements were great enough to stop the

British from achieving their goal of pushing the Americans out and in the Treaty of Paris ending the war, all the British lands South of Canada were given to the Americans. After a long series of illnesses Clark died on February 13, 1818.

## Paul Revere

Famous for his ride to warn Lexington and Concord of the approaching British, Paul Revere is an American legend. Revere was born in Boston in 1735, the son of a silversmith. Revere also became a silversmith and made the famous copper engraving of the "The Bloody Massacre Perpetrated in King Street, Boston on March 5th 1770." In 1775, with the relations between the colonies and Britain at a boiling point, Revere made his mark in history. It was expected by the citizens of Boston that the British would make a march to Concord to seize patriot weapons. When the British formed on the night of April 18, Boston patriot Joseph Warren sent Revere and William Dawes to ride to Lexington and warn patriot leaders John Hancock and Samuel Adams who were hiding there. After warning Hancock and Adams, Revere left to warn the citizens of Concord but was captured by the British before reaching his destination. The British released Revere and he did no more to distinguish himself during the war. After the war he became a successful Boston silversmith and died in 1818.

## Comte de Rochambeau

The Comte de Rochambeau, whose name was Jean Baptiste Donatien de Vimeur, was a French general who lived from 1725 until 1807. Rochambeau was a long time soldier who had fought in the Seven Year's War when he came to America in 1780 to lead the French army in the Revolution in 1780. Rochambeau proved to be a valuable ally to and Rochambeau began moving on New York hoping to draw the British out of Virginia. When Washington got news that the French Admiral Grasse was bringing the French West Indies fleet to the Chesapeake they began marching their armies to Virginia. Rochambeau led the French in the maneuvers at Yorktown and was instrumental in the defeat of General Cornwallis and the British there.

## References

1. Bailyn, Bernard. The Ideological Origins of the American Revolution. Cambridge: The Belknap Press of Harvard University Press, 1967.
2. Hibbert, Christopher. Redcoats and Rebels: The American Revolution Through British Eyes. New York: W. W. Norton & Company, 1990.
3. Middlekauff, Robert. The Glorious Cause: The American Revolution, 1763-1789. New York: Oxford University Press, 1982.
4. The American Heritage Book of the Revolution. Richard M. Ketchum, ed. New York: American Heritage Publishing Co., 1958.
5. Tuchman, Barbara W. The First Salute. New York: Alfred A. Knopf, Inc., 1988.
6. Wood, Gordon S. The Creation of the American Republic, 1776-1787. New York: W. W. Norton & Company, 1969.